Chardonnay and French Colombard for white wine and Cabernet Sauvignon, Zinfandel, and Merlot for red wine.

Among these popular varieties, increases in bearing acreage last year were most significant for Cabernet Sauvignon (up 21 percent), Merlot (up 15 percent), and Chardonnay (up 10 percent). Bearing acreage in California for French Colombard declined 5 percent. Rapid increases in acreage for wine grapes during the 1990's reflect a boost in U.S. wine demand, heightened by publicity associating moderate wine consumption, particularly red wine, with health benefits.

The wine sector in Washington also grew rapidly during the 1990's—total wine grape acreage more than doubled between 1993 and 1999 (from 11,100 acres to 24,000) and bearing acreage grew 67 percent (from 10,200 acres to 17,000). Into the new decade, expansion continues in the state's wine sector, with bearing acreage rising 18 percent in 2000 from a year ago to 20,000 acres. Although bearing acreage numbers are not yet reported for 2001, wine grape growers in the state expect to harvest a larger crop this year as new acreage comes into production.

U.S. wine exports rose 6 percent in 2000 to a record 73.9 million gallons, with the United Kingdom, Canada, Japan, the Netherlands, and Switzerland accounting for 72 percent of shipments. While more U.S. grapes were crushed for wine last year, continued strong domestic demand helped generate a 10-percent rise in imports over 1999. Imports came mainly from Italy, France, Australia, Chile, and Spain. Shipments from these main suppliers, except Spain, were up. During the first 8 months of 2001, U.S. wine imports and exports were up 7 percent and 12 percent, indicating a continuing strong market for wine both here and abroad.

The supply of raisins in the U.S. during 2000/01 increased despite a 31-percent downturn in imports last year, because domestic shipments were higher and carry-in stocks were large. Boosted by increased supplies and lower grower prices, U.S. raisin exports returned to more normal levels during 2000/01 following a sharp drop the previous season when export volume was at its lowest since 1986/87. Exports rose 39 percent from the previous season, far larger than the increase in supplies. While exports recovered, stocks at the end of the year remained large, indicating that domestic consumption had declined during 2000/01—by 4 percent. The large ending stocks in 2000/01, along with depressed prices, are expected to lower production in 2001/02.

In August and September of this year, mild temperatures in California provided good drying conditions for sun-dried raisins. As of September, more than 80 percent of the raisin crop, reportedly of generally good quality, had been harvested. While domestic supplies are likely to remain large in 2001/02 despite lower production, exports are likely to decline due to large world surplus of cheaper raisins entering the new season. AO

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Livestock, Dairy, & Poultry

Dairy Industry in 2002 to Encounter Uncertain Climate of Demand

The dairy industry experience next year will likely be considerably different from 1998-2001. Recent years have seen strong demand for dairy products. Prices were generally robust except when rapid expansion in milk production temporarily overcame demand. In 2002, softening economic conditions probably will result in less robust demand growth for cheese, butter, and dairy products overall. Meanwhile, production growth could be strong if some of the problems of 2001 are not repeated.

Not only has commercial use of both milkfat and skim solids set records every year during 1998-2001, but the strength of recent demand growth has been extraordinary. Farm milk prices averaged the highest ever in 1998, were very close to that record in 2001, and were the fourth highest ever in 1999. In the face of these generally high prices, commercial use of milkfat grew about 2.2 percent a year during the last 4 years, a rate much faster than population growth and than most earlier years. Sales of skim rose less rapidly, but still managed very respectable growth of about 1.8 percent per year.

Cheese, butter, and fluid cream, products used heavily by restaurants, were the leading lights among dairy products; consumer expenditures for eating away from home rose briskly during this period. Meanwhile, sales of fluid milk, ice cream, and other perishable products showed little growth. Most of these products are primarily used at home, and their demand may have been hurt as consumers dined out more often.

Demand in 2002 is uncertain. Consumer reaction to a weakening economy following the exuberance of the last couple of years is particularly difficult to gauge, because the economic expansion was unprecedented in terms of both strength and length.

Some of the food spending patterns of recent years are likely to persist, at least through 2002. In particular, restaurant spending will probably stay heavier than during earlier periods of economic weakness. But spending at eating establishments is unlikely to grow as much as in recent years. Most adjustments probably will be in the average expenditure on a meal eaten away from home rather than in the number of such meals. As consumers become more sensitive to menu prices, restaurants likely will respond with tighter controls on the amounts of ingredients used in dishes. They also may halt the growth in portion size or offer smaller alternatives. However, large portions will remain a relatively inexpensive way of generating perceptions of value.

Cheese demand in 2002 probably will be only modestly affected by adjustments in the restaurant sector. Cheese is used heavily by all segments of the industry, so shifts among eating places do not necessarily have much effect. Only gradual erosion in total restaurant use is likely. Weak-

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Heifer Math & the Western Dairy Industry

The very high recent prices for replacement heifers and cows resulted from a combination of shortrun incentives to expand dairy herds and the longrun growth of the western dairy industry. Replacement prices are likely to remain relatively high for the foreseeable future because of the difficulty in increasing the number of good replacement heifers from current levels. Very high heifer prices are forcing management changes on at least some western dairy operations.

Information from the 1995 dairy management study of the National Animal Health Monitoring System (NAHMS) provides insight on replacement heifer supplies. From 100 cows, just over 93 calves will generally be born alive, half of them heifers. About 8 of these 47 heifers will die before reaching 26 months—the average age of calving and entering the milking herd. Of the 39 potential replacement heifers, some will not be kept because of inferior genetic potential and others will be culled because of poor performance, reproductive or health problems, or other reasons. Conservative assumptions of 10 percent culled for inferior genetics and 10 percent for other factors imply that 32 or fewer replacement heifers could be available from the 100 cows.

A supply of 30 to 32 heifers per year is adequate the replace the 24 cows that NAHMS said were culled on average and the 4 that died, while allowing a few extra to increase the total cow herd. However, that heifer supply cannot easily support some traditional western patterns. Individual western dairy herds with replacement rates of 35 to 40 percent were not uncommon. Similarly, a significant number of western operations chose not to save many of their heifers for the replacement herd. Although 2002's lower milk prices probably will lessen demand for heifers somewhat, longrun adjustments likely will require some changes in the way some western dairy herds are managed.

In 1975, the Pacific and Mountain regions held less than 14 percent of the U. S. milk cows. Supplying western areas with enough heifers from other regions to make up for the local deficit and to fuel their expansion was not a major strain. But this was not the case 25 years later, when these regions accounted for almost 31 percent of milk cows.

Large western dairy farms typically have had relatively high variable costs per cow, particularly cash variable costs. High costs per cow were not a problem because very high milk production per cow lowered costs per cwt of milk to very competitive levels. However, this need for high milk per cow dominated western management philosophy. One major aspect of this emphasis was very strict cow culling, with cows often given little chance to recover from an adverse event before being sent to slaughter. This management technique has kept average milk per cow high at the cost of sometimes needlessly losing the difference in a cow's value as a milk cow and as a slaughter animal.

The emphasis on milk per cow also meant keeping a cow's interval between calvings as short as possible. With short calving intervals, cows spend a larger share of their productive life at peak or near-peak milk production. In order to keep a tight calving interval, many western farms gave a cow only one (or sometimes no) opportunity to be bred with artificial insemination before being turned in with a bull. A much larger share of the heifers from natural service bulls will not have the genetic potential to be good replacements.

Another common practice of western dairy management was single-minded attention to the milking herd. Raising crops, raising calves, or managing a sophisticated breeding program were considered distractions from producing milk. A significant number of these farms simply did not engage in these activities.

The western dairy industry is now too big to continue having such a large proportional gap between heifers used and heifers produced. Western management will continue to evolve. The pace of ongoing management adjustments undoubtedly has been spurred by very high recent prices for replacement heifers. However, such fundamental management changes do not come easily or quickly, and heifer prices probably will stay relatively high for years to come.

ness in retail sales also is likely to develop only slowly. Consumer belt-tightening probably will consist of both eliminating at-home "treats" and replacing away-from-home treats with less costly at-home treats.

Demand for butter and fluid cream may be affected more than cheese demand. Table use of these products is spread across a diverse group of restaurants. But kitchen use is much heavier in upper tier establishments—the types that may be affected most. In addition, retail sales may be trimmed by a more sedate consumer attitude.

Ice cream demand may actually improve because of ice cream's unusual image as an inexpensive luxury. Similarly, fluid milk demand probably would benefit from any shift to eating more meals at home. However, these gains are unlikely to offset weakening demand for other products. Overall, dairy demand is expected to grow next year, but the increase probably will be smaller than in recent years.

Milk production could rebound next year from 2001's drop of about 1 percent if some of the pitfalls experienced this year can be avoided. Milk per cow was hit by stressful winter weather and by more-than-normal heat stress in summer.

While 2001 forage quality was not bad overall, supplies of top forage were tight. Forage quality also contributed to less milk per cow. Supplies of high quality alfalfa hay were very tight by the second half of the 2000-01 forage season. Alfalfa production is forecast to rise a bit in 2001, but the increase is less than 2 percent and most areas had widespread quality problems with some cuttings. Silage quality also reportedly is mixed.

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Milk-feed price ratios will favor increased use of concentrate feeds in 2002. This incentive should support considerable recovery in milk per cow if weather and forage quality cooperate. Milk per cow is projected to rise about 3 percent in 2002. Even with this recovery, milk per cow would remain slightly below the longrun trend.

Milk cow numbers will end 2001 just slightly below the start of the year. Cow numbers probably would have been stronger in 2001 if expanding farms had not faced some key problems. Uncertainty about adequate forage supplies played a role, but obtaining replacement animals to fill the new barns was a major stumbling block. Prices of replacement heifers and cows were very high, if adequate numbers could even be found when wanted.

Because of the replacement situation, some new facilities probably are operating somewhat below capacity, and construction of others has been delayed. Next year, these facilities are likely to fill, strengthening cow numbers. Cow numbers are projected to slip fractionally in 2002, compared with a 1-percent decline in 2001.

The delayed effects of relatively low returns in 2000 increased the number of farms leaving dairying in late 2000 and early 2001, but the jumps in milk prices last spring quickly slowed the rate again. Possibly the biggest incentive to leave dairying in recent months has been the very high prices for replacement cows. The 2002 exit rate probably will be relatively modest, as reductions in returns will be cushioned by savings from 2001 returns.

Milk production is expected to grow by almost 3 percent in 2002, more than projected growth in demand. A price drop seems certain, with the extent of the fall highly uncertain and largely related to softness of demand. Farm milk prices are projected to decline about $2 per cwt from this year's average $15.35-$15.45. AO

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Upcoming Reports—USDA's Economic Research Service

The following reports are issued electronically at the times indicated.

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December

11 *World Agricultural Supply and Demand Estimates (8:30 a.m.)*
12 *Cotton and Wool Outlook (4 p.m.)**
*Oil Crops Outlook (4 p.m.)***
13 *Rice Outlook (4 p.m.)***
*Feed Outlook (9 a.m.)***
*Wheat Outlook (9 a.m.)***
14 *Vegetables and Specialties/ Melons Outlook Newsletter†*
19 *Agricultural Outlook (3 p.m.)**
27 *Livestock, Dairy, and Poultry Situation and Outlook***
Foreign Agricultural Trade of the United States (FATUS)/ U.S. Agricultural Trade Update (4 p.m.)

**Release of summary, 3 p.m.*
***Available electronically only.*
†Third issue of the new electronic-only newsletter released every other month, which will replace the Vegetables and Specialties Situation and Outlook series.

What's ahead?

- Pressures for change in Eastern Europe's livestock sector
- How U.S. farm policy meshes with WTO commitments
- Biotechnology adoption: some policy implications

. . . in upcoming issues of ***Agricultural Outlook***